CLAIMS

What is claimed is:

1. A security system using fingerprints, comprising:

a fingerprint scan part creating a fingerprint image when a finger contacts the fingerprint scan part;

a fingerprint image storing part storing representative reference fingerprint images and at least one auxiliary reference fingerprint image for registered users; and

a control part determining whether one of the representative reference fingerprint images matches a first input fingerprint image input through the fingerprint scan part, reading auxiliary reference fingerprint images corresponding to a matching representative reference fingerprint image, and comparing other fingerprint images input after the first input fingerprint image with the auxiliary reference fingerprint images to determine user authentication.

2. The security system using fingerprints according to claim 1, wherein the control part displays an error message when the first input fingerprint image does not match any of the representative reference fingerprint images in the fingerprint image storing part.

3. The security system using fingerprints according to claim 2, further comprising a fingerprint registering part sequentially storing fingerprint images input through the fingerprint scan part by an unregistered user in the fingerprint image storing part, and displaying the stored fingerprint images of the unregistered user for the unregistered user to select one of the stored fingerprint images as the representative reference fingerprint image.

4. The security system using fingerprints according to claim 3, wherein the fingerprint registering part assigns sequential order values to the unregistered fingerprint images input through the fingerprint scan part and stores the sequential order values with the input fingerprint images of the unregistered user in the fingerprint image storing part.

5. The security system using fingerprints according to claim 3, wherein the fingerprint scan part comprises multiple fingerprint input keys having order values sequentially selected by the unregistered user; and

the fingerprint registering part stores a combination of input fingerprint images contacting the fingerprint input keys selected by the unregistered user and the order values in the fingerprint image storing part.

6. The security system using fingerprints according to claim 4, wherein

the fingerprint registering part displays a screen to set the input order of the auxiliary reference fingerprint images; and

the control part stores the input order of the auxiliary reference fingerprint images in the fingerprint image storing part.

7. A security method using fingerprints, comprising:

storing representative reference fingerprint images and at least one auxiliary reference fingerprint image, according to registered users;

receiving a first input fingerprint image for authentication of a user;

determining whether one of the stored representative reference fingerprint images matches the first input fingerprint image;

reading auxiliary reference fingerprint images corresponding to a matching representative reference fingerprint image;

receiving additional fingerprint images sequentially input by the user; and

determining whether the user is authenticated by respectively comparing the additional input fingerprint images with the corresponding auxiliary reference fingerprint images.

8. The security method using fingerprints according to claim 7, further comprising displaying an error message when the first input fingerprint image does not match any of the representative reference fingerprint images.

9. The security method using fingerprints according to claim 8, further comprising:

receiving fingerprint images of an unregistered user; and

assigning order values to the fingerprint images sequentially input by the unregistered user, and storing the order values with the input fingerprint images.

10. The security method using fingerprints according to claim 9, further comprising displaying a screen for the unregistered user to select one of the stored representative reference fingerprint images as the representative reference fingerprint image.

11. The security method using fingerprints according to claim 10, further comprising:

displaying a screen to select and assign order values to the auxiliary reference fingerprint images; and

storing the selected auxiliary reference fingerprint image and the order values with the selected representative reference fingerprint image.

12. The security method using fingerprints according to claim 8, further comprising:

selecting sequentially two or more fingerprint input keys having order values selected by the unregistered user;

storing a combination of fingerprint images input through the selected fingerprint input keys and the order values; and

determining authentication of a user requesting authentication by determining whether an order of the fingerprint images input through the fingerprint input keys matches the selected order values and whether the input fingerprint images match the stored auxiliary reference fingerprint images.

13. A fingerprint security method, comprising:

receiving and storing fingerprint images for each finger of one or more unregistered users;

displaying the stored fingerprint images for the unregistered user to select one of the stored fingerprint images as a representative reference fingerprint image;

displaying the stored fingerprint images for the unregistered user to select and order one or more of the stored fingerprint images as ordered auxiliary reference fingerprint images;

registering the user with the corresponding representative reference fingerprint image and the auxiliary reference fingerprint images;

receiving a first fingerprint image from a user to be authenticated;

determining whether the first fingerprint image matches any of a plurality of stored representative reference fingerprint images for a plurality of registered users;

receiving, when the first fingerprint image matches one of the stored representative reference fingerprint images, additional fingerprint images sequentially input by the user to be authenticated; and

determining whether each of the additional fingerprint images matches auxiliary reference fingerprint images corresponding to the representative reference fingerprint image that matches the first fingerprint image, and whether the additional fingerprint images are input according to the selected order of the corresponding auxiliary reference fingerprint images.

14. The fingerprint security method according to claim 13, further comprising displaying an error message when the first input fingerprint image does not match any of the representative reference fingerprint images.